What is claimed is:

1. A method for determining a blood group type of an individual by direct typing on an optical bio-disc comprising:

applying red blood cells to at least one chamber in the optical bio-disc, the chamber surface including at least one capture field including a capture antibody, at least one positive control field, and at least one negative control field;

incubating the samples in the disc to promote antigen-antibody interaction;

placing the disc into an optical reader that supports it on a first side;

rotating the disc about an axis substantially perpendicular to the first side to separate non-captured cells from captured cells located on the chamber surface;

obtaining a measurement for the test field, the positive control field, and the negative control field

analyzing the measurement of the test field, the positive control field and the negative control field to determine blood group type of the individual.

2. A method for determining the presence of antibodies to an ABO blood group of an individual's blood sample by reverse-typing on an optical bio-disc including:

purifying serum from a blood sample;

creating at least one sample by mixing serum with cells of a known ABO blood group;

injecting at least one sample into at least one channel in the optical bio-disc, thereby delivering the sample onto a capture field including a cell binding molecule;

incubating the sample on the capture field to allow the agglutinated and non-agglutinated cells to bind to the cell binding molecule;

placing the disc into an optical reader that supports it on a first side;

rotating the disc about an axis substantially perpendicular to the first side;

scanning the chamber with an incident beam of electromagnetic radiation by rotating the disc about an axis substantially perpendicular to the first side by moving the incident beam in a direction radial to the axis;

detecting a return beam of electromagnetic radiation formed by at least a part of the incident beam after interacting with the disc;

converting the return beam into an output signal;

analyzing the output signal to determine the presence of cells bound on the capture field; and

determining the presence of antibodies in the sample.

3. A method for determining the presence of antibodies to an ABO blood group of an individual's blood sample by reverse-typing on an optical bio-disc comprising:

applying a blood sample to at least one microfluidic channel in the optical bio-disc including a separation chamber with at least one microfilter, at least one mixing chamber, and at least one capture chamber;

spinning for a first time the disc at a first speed to effect separation of the blood sample into cells and serum in the separation chamber;

spinning for a second time the disc at a second speed higher than the first, the second speed effecting movement of the serum through the microfluidic channel into a mixing chamber;

adding cells of a known ABO blood group cells into the mixing chamber containing serum;

spinning for a third time the disc in one direction and alternately in another direction at least once to effect mixing of the serum and the cells;

incubating the cells in the serum for a sufficient period of time to allow antibody-antigen binding;

spinning for a fourth time the disc at a third speed higher than the second, the third speed effecting movement of the cells into of a capture chamber, the capture chamber including surface with a molecule that binds cells;

incubating the sample in the capture chamber to promote cell binding to the chamber surface;

spinning the disc for a fifth time to remove non-bound cells from the capture field;

scanning the chamber with an incident beam of electromagnetic radiation by rotating the disc about an axis substantially perpendicular to the first side by moving the incident beam in a direction radial to the axis;

detecting a return beam of electromagnetic radiation formed by at least a part of the incident beam after interacting with the disc;

converting the return beam into an output signal;

analyzing the output signal to determine the presence of agglutinated cells; and

determining the presence of antibodies in the sample.

4. A method for determining the presence of antibodies to a blood group type in an individual by antibody-typing on an optical bio-disc comprising:

purifying serum from a blood sample;

creating at least one sample by mixing serum with cells of a known blood group phenotyype;

injecting at least one sample into at least one channel in the optical bio-disc, thereby delivering the sample onto a capture field including a cell binding molecule;

incubating the sample on the capture field to allow the cells to bind to the cell binding molecule;

placing the disc into an optical reader that supports it on a first side;

rotating the disc about an axis substantially perpendicular to the first side;

scanning the chamber with an incident beam of electromagnetic radiation by rotating the disc about an axis substantially perpendicular to the first side by moving the incident beam in a direction radial to the axis;

detecting a return beam of electromagnetic radiation formed by at least a part of the incident beam after interacting with the disc;

converting the return beam into an output signal;

analyzing the output signal to determine the presence of cells bound to the capture field; and

determining the presence of blood group antibodies.

5. A method for determining the presence of antibodies to a blood group type in an individual by reverse-typing on an optical bio-disc comprising:

applying a blood sample to at least one microfluidic channel in the optical bio-disc including a separation chamber with at least one microfilter, at least one mixing chamber, and at least one capture chamber;

spinning for a first time the disc at a first speed to effect separation of the blood sample into cells and serum in the separation chamber;

spinning for a second time the disc at a second speed higher than the first, the second speed effecting movement of the serum through the microfluidic channel into a mixing chamber;

adding cells of a known blood group cell phenotype into the mixing chamber containing serum;

spinning for a third time the disc in one direction and alternately in another direction at least once to effect mixing of the serum and the cells;

incubating the cells in the serum for a sufficient period of time to allow antibody-antigen binding;

spinning for a fourth time the disc at a third speed higher than the second, the third speed effecting movement of the cells into of a capture chamber, the capture chamber including a surface with an anti-human immunoglobulin molecule;

incubating the sample in the capture chamber to promote cell binding to the chamber surface;

spinning for a fifth time the disc to remove non-bound cells;

scanning the chamber with an incident beam of electromagnetic radiation by rotating the disc about an axis substantially perpendicular to the first side by moving the incident beam in a direction radial to the axis;

detecting a return beam of electromagnetic radiation formed by at least a part of the incident beam after interacting with the disc;

converting the return beam into an output signal;

analyzing the output signal to determine if the cells are agglutinated; and

determining the presence of blood group antibodies.

6. An apparatus for determining a blood group type of an individual comprising:

an optical bio-disc including at least one capture chamber including:

a layer including a first capture antibody, and

a layer including a second capture antibody bound by the first capture antibody, the second capture antibody being specific for a blood group antigen;

a disc drive assembly;

an optical reader; and

software for blood group analysis.

7. An optical-bio disc for performing a blood-typing assay, said disc comprising:

a substrate;

a separation chamber associated with said substrate, said separation chamber including a first inlet port;

filter means associated with said separation chamber;

a first mixing chamber in fluid communication with said separation chamber, said first mixing chamber including a second inlet port ;

a second mixing chamber in fluid communication with said separation chamber, said second mixing chamber including a third inlet port;

a first detection chamber in fluid communication with said first mixing chamber, said first detection chamber including a capture zone; and

a second detection chamber in fluid communication with said second mixing chamber, said second detection chamber including a capture zone.